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Dinaburg Technology Receives U.S. Patent for Revolutionary New Loudspeaker Technology

January 19, 2021 Dallas, TX

For close to 100 years, the world of sound reproduction has been based on Rice and Kellogg's work. Recently Dinaburg Technology, based in Dallas, TX, was issued their first U.S. patent for an enhanced electro-dynamic loudspeaker design. Mikhail Dinaburg, noted physicist and the patent inventor, uncovered some missing elements in the Rice-Kellogg's work and set out to prove it. Dinaburg's patent discloses techniques for higher performance sound reproduction based upon Boyle's Law. The design techniques enable lower distortion, extended frequency range, higher efficiency, and improved speech intelligibility. The invention has wide applications and scales from a 6 mm earphone driver, to near-field studio monitors, to concert subwoofers.

Dinaburg has taken into consideration factors not commonly considered in electro-acoustic modeling. This out-of-the-box thinking, provided the "loop-hole" in the design rules, providing for the measurement results being better than the predictions from simplistic simulations.

The typical speaker radiates as much sound energy from the rear of the diaphragm as the front. In most loudspeaker systems this back energy is applied constructively through a bass reflex port, tuned to reinforce the bottom end response or dissipated as heat through shearing action of the box stuffing. Dinaburg's innovation is a port substitute consisting of an active speaker constructed concentrically with a stabilizing ring radiator aka passive ring radiator. The stabilizing ring is compliantly held in place by surrounds on both the inner and outer periphery. There are a number of benefits, some not as obvious as others. The stabilizing radiator (instead of a simple vent) blocks mid-range sound energy from of the enclosure, avoiding both comb filtering interference that can result with larger vents. The stabilizing ring radiator provides for tighter constructive coupling to the active speaker (and to the room) compared to a bass reflex port. From the measured data, it can be seen that with the Dinaburg topology more sensitivity is delivered than what would be predicted by modeling simulations. Actually, these simulations assume loss of pattern control in the mid-bass on down, but in this range is where the stabilizing ring providing a larger effective radiating area and tighter coupling of the bass to the room. Enabling the selection of a smaller woofer or full range active driver, provides the benefit of avoiding beaming in the midrange that would have resulted from an active speaker of the same size as the driver + stabilizing ring radiator.

The Dinaburg team will be presenting a technical webinar with independent verifications and extensive test results. This webinar is hosted by **ALTI** (Audio & Loudspeaker Technologies International) on February 9, 2021 at 11AM EST. **Click here to register.**

The patent number is 10/812,912 and can be downloaded from this link: https://bit.ly/3klZeex Additional patents are in preparation. For more information, and to receive notices of further test and media releases, please contact press@dinaburgtech.com